

AB
Cmld

a generating step of generating, prior to synthesizing a plurality of input images, coordinate-space transformation parameters for transforming a coordinate space of one image among the images into a coordinate space of another image; and

an image synthesis step of combining the images based on a given mapping mode and the coordinate-space transformation parameters.

REMARKS

Claims 1-22 remain pending in this application. Claims 23-25 have been canceled without prejudice or disclaimer of the subject matter. Claims 1, 6, 11, 14, 18, and 22 have been amended to define still more clearly what Applicants regard as their invention, in terms which distinguish over the art of record. Claims 1, 6, 11, 14, 18 and 22 are independent.

Initially, neither the Office Action nor the Office Action Summary attached thereto acknowledges the receipt by the U.S. Patent and Trademark Office (USPTO) of the Claim To Priority and the certified copies of Japanese priority Application Nos. 217194/1999 and 230476/1999 filed in the USPTO on September 7, 2000. For the Examiner's convenience, enclosed herewith is a copy of the Claim To Priority and a copy of the return receipt postcard bearing the official stamp of receipt of the USPTO, evidencing the USPTO's receipt of the Claim To Priority and the mentioned certified copies on September 7, 2000. Applicants respectfully request that the USPTO issue a written confirmation acknowledging that the USPTO's receipt of those items and Applicants' claim for foreign priority under 35 U.S.C. § 119.

Claims 1-25 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,434,265 (Xiong et al.).

First, cancellation of Claims 23-25 renders the rejections of those claims moot.

Claim 1 is directed to an image synthesis method comprising a placement information obtaining step of obtaining placement information about a plurality of images in which adjacent images have a common subject region. The method also comprises a setting step of setting one mapping mode out of a plurality of mapping modes each corresponding to a different mapping surface in accordance with said obtained placement information. The method further comprises a synthesis step of combining the plurality of images by using the mapping mode set in the setting step.

One important feature of Claim 1 is that the method sets one mapping mode out of a plurality of mapping modes, each corresponding to a different mapping surface, in accordance with obtained placement information about a plurality of images.

Xiong et al., as understood by Applicants, relates to a system for creating virtual reality panoramas. At column 8, lines 19-58 (cited by the Examiner), it is explained that authoring a panorama from 2D images can be thought of as divided into two different phases. The first phase is the orientation of originally 2D images into 3D space, and the second phase is the projection of a panorama onto a particular 3D geometry that can later be used to project views of the panorama onto a 2D viewing plane. A series of preferably overlapping photographs are analyzed to determine what orientation the photographs were taken in order to establish a common ground for subsequent operations, including the

construction of a panorama. In *Xiong et al.*, the panorama is not ordinarily meant to be viewed by a user; only the subsequent projection of the panorama onto a viewing plane is viewed by the user. The panorama is constructed on a particular geometry that will best facilitate the subsequent step (sometimes termed rendering) of the projection of the panorama from the particular geometry onto a chosen viewing plane for viewing by a user. Typical geometries in the system on which panoramas are formed include cubic, polyhedral, cylindrical, and spherical geometries.

As can be seen from the above description, in *Xiong et al.*, an image is projected onto a predetermined surface for image synthesis, and the combined image is projected onto an arbitrary surface for image display. Therefore, in *Xiong et al.*, the synthesized image is deteriorated by multiple projections. On the contrary, the method of Claim 1 makes it possible to decrease the number of unnecessary projections by providing flexibility in the projection at the time of image synthesis, namely, through combining the plurality of images by using a mapping mode set in a setting step. As described in the portion of Applicants' specification corresponding to (for example) Fig. 21, the method of Claim 1 makes it possible to properly select a mapping mode for image synthesis out of a plurality of mapping modes, each corresponding to a different mapping surface, in accordance with the placement of the images.

Moreover, in *Xiong et al.*, when a plurality of images are combined, only one kind of virtual surface is applied, namely, the "panoramic canvas" (see, e.g., column 14, line 51 to column 15, line 33). Nothing has been found in *Xiong et al.* that would teach or suggest setting one mapping mode out of a plurality of mapping modes, each

corresponding to a different mapping surface, in accordance with obtained placement information about a plurality of images, as recited in Claim 1.

For at least these reasons, Applicants submit that Claim 1 is patentable over *Xiong et al.*

Independent Claims 1, 6, and 11 are apparatus and computer-readable storage medium claims respectively corresponding to method Claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

Independent Claims 14, 18, and 22 each include the feature of setting one mapping mode out of a plurality of mapping modes each corresponding to a different mapping surface, as discussed above in connection with Claim 1. Accordingly, Claims 14, 18, and 22 are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' attorney of record may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



Attorney for Applicants

Registration No. 44,063

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

NY_MAIN 322978 v1



A.N. 09/624,385
Atty. Docket No. 03560.002626.

VERSION MARKED TO SHOW CHANGES TO CLAIMS

1. Amended) An image synthesis method comprising:
a placement information obtaining step of obtaining placement information about a plurality of images in which adjacent images have a common subject region;
a setting step of setting one mapping mode out of a plurality of mapping modes each corresponding to a different mapping surface in accordance with said obtained placement information; and

a synthesis step of combining [the] said plurality of images by using [a] the mapping mode [in accordance with the placement information] set in said setting step.

6. (Amended) An image synthesis apparatus comprising:
placement information obtaining means for obtaining placement information about a plurality of images in which adjacent images have a common subject region;
setting means for setting one mapping mode out of a plurality of mapping modes each corresponding to a different mapping surface in accordance with said obtained placement information; and

synthesis means for combining [the] said plurality of images by using [a] the mapping mode [in accordance with the placement information] set by said setting means.

11. (Amended) A computer-readable storage medium having recorded thereon a program for implementing a computer-implementable image synthesis method for combining a plurality of images, said program comprising:

a placement information obtaining step of obtaining placement information about a plurality of images in which adjacent images have a common subject region;

a setting step of setting one mapping mode out of a plurality of mapping modes each corresponding to a different mapping surface in accordance with said obtained placement information; and

a synthesis step of combining [the] said plurality of images by using [a] the mapping mode [in accordance with the placement information] set in said setting step.

14. (Amended) An image synthesis method conforming to a plurality of mapping transformation modes, comprising:

a setting step of setting one mapping mode out of a plurality of mapping modes each corresponding to a different mapping surface;

a generation step of generating, prior to [performing mapping transformation] synthesizing a plurality of input images, coordinate-space transformation parameters for transforming a coordinate space of one image among the images into a coordinate space of another image; and

an image synthesis step of combining the images based on a given mapping mode and the coordinate-space transformation parameters.

18. (Amended) An image synthesis apparatus conforming to a plurality of mapping transformation modes, comprising:

setting means for setting one mapping mode out of a plurality of mapping modes each corresponding to a different mapping surface;

generating means for generating, prior to [performing mapping transformation] synthesizing a plurality of input images, coordinate-space transformation parameters for transforming a coordinate space of one image among the images into a coordinate space of another image; and

image synthesis means for combining the images based on a given mapping mode and the coordinate-space transformation parameters.

22. (Amended) A computer-readable storage medium having recorded thereon a program for implementing a computer-implementable panoramic image synthesis method conforming to a plurality of mapping transformation modes, said program comprising:

a setting step of setting one mapping mode out of a plurality of mapping modes each corresponding to a different mapping surface;

a generating step of generating, prior to [performing mapping transformation] synthesizing a plurality of input images, coordinate-space transformation parameters for transforming a coordinate space of one image among the images into a coordinate space of another image; and

A.N. 09/624,385
Atty. Docket No. 03560.002626.

an image synthesis step of combining the images based on a given mapping mode and the coordinate-space transformation parameters.

23-25. (Canceled)

NY_MAIN 322978v1